15A NCAC 02D .1423 LARGE INTERNAL COMBUSTION ENGINES

(a) Applicability. This Rule applies to the following internal combustion engines permitted after October 30, 2000 that are subject to 15A NCAC 02D .1418 but are not subject to 15A NCAC 02D .0530 or .0531:

(1) rich burn stationary internal combustion engines rated at greater than or equal to 2,400 brake horsepower;

(2) lean burn stationary internal combustion engines rated at greater than or equal to 2,400 brake horsepower;

(3) diesel stationary internal combustion engines rated at greater than or equal to 3,000 brake horsepower; or

(4) dual fuel stationary internal combustion engines rated at greater than or equal to 4,400 brake horsepower.

(b) Emission limitation. The owner or operator of a stationary internal combustion engine shall not cause to be emitted into the atmosphere NOx in excess of the following applicable limit, expressed as NOx in parts per million by volume corrected to 15 percent oxygen on a dry basis, averaged over a rolling 30-day period, as may be adjusted pursuant to Paragraph (c) of this Rule:

MAXIMUM ALLOWABLE NOx EMISSION CONCENTRATION FOR STATIONARY INTERNAL COMBUSTION ENGINES
(parts per million)

Engine Type	Limitation
Rich-burn	110
Lean-burn	125
Diesel	175
Dual fuel	125

(c) Adjustment. Each emission limit expressed in Paragraph (b) of this Rule may be multiplied by X, where X equals the engine efficiency (E) divided by a reference efficiency of 30 percent. Engine efficiency (E) shall be determined using one of the methods specified in Subparagraphs (1) or (2) of this Paragraph, whichever provides a higher value. However, engine efficiency (E) shall not be less than 30 percent. An engine with an efficiency lower than 30 percent shall be assigned an efficiency of 30 percent.

(1)

$$E = \frac{(\text{Engine output}) \cdot (100)}{\text{Energy input}}$$

where energy input is determined by a fuel measuring device accurate to plus or minus 5 percent and is based on the higher heating value (HHV) of the fuel. Percent efficiency (E) shall be averaged over 15 consecutive minutes and measured at peak load for the applicable engine.

(2)

$$E = \frac{(\text{Manufacturer's rated efficiency at LHV}) \cdot (\text{LHV})}{\text{HHV}}$$

where LHV is the lower heating value of the fuel; and HHV is the higher heating value of the fuel.

(d) Compliance determination and monitoring. The owner or operator of an internal combustion engine subject to the requirements of this Rule shall determine compliance using:

(1) a continuous emissions monitoring system that meets the applicable requirements of 40 CFR part 60, Appendices B and F, excluding data obtained during periods specified in Paragraph (g) of this Rule and 15A NCAC 02D .1404; or

(2) an alternate calculated and recordkeeping procedure based on actual emissions testing and correlation with operating parameters. The installation, implementation, and use of this alternate procedure shall be approved by the Director before it may be used. The Director shall approve the alternative procedure if he or she finds that it can show the compliance status of the engine.

(e) Reporting requirements. The owner or operator of a stationary internal combustion engine subject to this Rule shall submit:

(1) a report documenting the engine's total nitrogen oxide emissions beginning May 1 and ending September 30 of each year to the Director by October 31 of each year, beginning with the year of first ozone season that the engine operates; and

(2) an excess emissions and monitoring systems performance report, according to the requirements of 40 CFR 60.7(c) and 60.13, if a continuous emissions monitoring system is used.

(f) Recordkeeping requirements. The owner or operator of a stationary internal combustion engine subject to this Rule shall maintain all records necessary to demonstrate compliance with the Rule for two calendar years at the facility at which the engine is located. The records shall be made available to the Director upon request. The owner or operator shall maintain records of the following information for each day the engine operates:

(1) identification and location of the engine;
(2) calendar date of record;
(3) the number of hours the engine operated during each day, including startups, shutdowns, and malfunctions, and the type and duration of any maintenance and repairs;
(4) the date and results of each emissions inspection;
(5) a summary of any emissions corrective maintenance taken;
(6) the results of all compliance tests; and
(7) if a unit is equipped with a continuous emission monitoring system:
    (A) identification of time periods during which nitrogen oxide standards were exceeded, the reason for the excess emissions, and action taken to correct the excess emissions and to prevent similar future excess emissions; and
    (B) identification of the time periods for which operating conditions and pollutant data were not obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

(g) Exemptions. The emission standards of this Rule shall not apply to the following periods of operation:

(1) start-up and shut-down periods and periods of malfunction, not to exceed 36 consecutive hours; and
(2) regularly scheduled maintenance activities.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.65; 143-215.66; 143.215.107(a)(5); 143.215.107(a)(7); 143.215.107(a)(10);*
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